

203194US-8DIV
KN 9156US

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :
PER-ANDERS LOF ET AL. : GROUP ART UNIT: UNASSIGNED
SERIAL NO: NEW APPLICATION :
FILED: HEREWITH : EXAMINER: UNASSIGNED
FOR: SYSTEM, METHOD AND :
COMPUTER PROGRAM :
PRODUCT FOR ENHANCING :
COMMERCIAL VALUE OF...

PRELIMINARY AMENDMENT

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20301

SIR:

Prior to examination on the merits, please amend the above-identified application, without prejudice, as follows:

IN THE CLAIMS

Please cancel without prejudice or disclaimer Claims 1-67 and 102-184.

Please amend the claims as shown on the attached marked-up copy. A complete set of claims in clean form is shown below.

68. A system for facilitating application of AC power from a renewable energy power production facility to a power grid, comprising:
the renewable energy power production facility configured to produce an amount of electrical power at a time variable frequency that is not compatible with a power grid;

a converter connected between said renewable energy power production facility and the power grid and configured to convert said amount of electrical power from the renewable energy power production facility to premier power that is compatible with a frequency and operational requirement of the power grid such that an output from said converter may be applied directly to the power grid;

a control processor including,

a communication port configured to transfer to a remote facility an indication regarding an amount of premier power produced by said converter,

a memory configured to hold computer readable instructions,

a processor configured to execute said computer readable instructions so as to implement,

a power monitoring mechanism configured to monitor said amount of premier power,

a message forming mechanism configured to include said indication in a coordination message that is sent through a communication link to said remote facility regarding the amount of premier power available to apply to said power grid wherein said remote facility being configured to apply power to said grid either directly from the remote facility or indirectly from another facility that applies power upon request from the remote facility.

69. The system of Claim 68, wherein said converter being a co-active converter that includes a DC-to-AC converter configured to receive the amount of electrical power from the renewable energy power production facility, where said amount of electrical power is at a direct current, and convert the amount of electrical power to AC;

a rotating converter; and

a power transformer connected between the rotating converter and the power grid.

70. The system of Claim 69, wherein said rotating converter includes at least one of

a static converter and a rotating converter configured to convert from DC to a frequency standard,

a frequency converter configured to convert from a variable low-frequency AC to a frequency standard,

a frequency converter configured to convert from a constant low-frequency AC to a frequency standard,

a rotating converter configured to supply at least one of reactive power and active power to a frequency standard, and

a power transformer configured to provide a voltage adaptation for adjusting a short circuit output capacity of the renewable energy power production facility.

71. The system of Claim 70, wherein said rotating converter is configured to provide at least one of

a start-up operation of the power grid after a major fault,

a source of active power so as to provide a priming operation for the amount of electrical power from the renewable energy power production facility,

a source of reactive power to the power grid at a predetermined quantity,

a suppressor of low order harmonics from the DC-to-AC converter,

a source of active AC voltage support for the DC-to-AC converter,

a separation of active power control and reactive power control, and

a supply of short-circuit power during faults operations of the power grid.

72. The system of Claim 69, wherein said rotating converter is a two-winding machine having two sets of AC three-phase windings arranged in a stator of the rotating converter and being exposed to AC and DC fields when in operation.

73. The system of Claim 69, wherein said rotating converter is a constant speed synchronous machine with a winding arranged in a rotor.

74. The system of Claim 73, wherein said winding of said rotating converter is a DC winding.

75. The system of Claim 69, wherein said rotating converter being an adjustable speed asynchronous machine having at least one of brush-less drives and brush-based drives.

76. The system of Claim 75, wherein said brush-based drives being a Static Scherbius drive.

77. The system of Claim 69, wherein said rotating converter is configured to withstand a large voltage sag in voltage provided by said renewable energy power production facility without tripping a breaker connected to the power grid.

78. The system of Claim 69, wherein said rotating converter being configured to provide a moment of inertia that is available as a short term storage facility for wind energy used to produce said renewable energy power production facility during a period of wind lull.

79. The system of Claim 69, wherein said co-active converter further comprises a prime mover configured to provide an alternative power source to said rotating converter.

80. The system of Claim 79, wherein said prime mover being fed from fossil fuel.

81. The system of Claim 79, wherein said prime mover being fed by at least one of vegetable oil and a compressed gas-based storage facility.

82. The system of Claim 69, wherein said power transformer being a three-winding, three-phase transformer.

83. The system of Claim 68, further comprising said communication link configured to convey said coordination message to said remote facility, wherein said remote facility being another AC power generation facility configured to adjust a power output thereof at a time that coincides with when said premier power is delivered to said power grid by said converter.

84. The system of Claim 83, wherein:

 said remote facility has an agreement with the renewable energy power production facility to adjust a power output from the remote facility by a predetermined amount in response to the coordination message indicating that the premier power from the converter has an energy measured over an effective time period being above or below a predetermined threshold by the predetermined amount; and

 at least one of the processor and the remote facility being configured to keep a virtual energy storage account of energy held on account of the renewable energy power production facility and credit or debit the account by the predetermined amount, said converter being a co-active converter.

85. The system of Claim 84, wherein said processor is configured to implement an accounting mechanism that is configured to keep track of deposits and withdrawals from said virtual energy storage account made by said renewable energy power production facility.

86. The system of Claim 85, wherein said accounting mechanism is configured to reflect a credit assigned to said renewable energy power production facility for making a monetary purchase of energy stored by the remote facility.

87. The system of Claim 85, wherein said accounting mechanism is configured to reflect a debit to said renewable energy power production facility for accepting a monetary payment for an amount of energy held by the remote facility on behalf of the renewable energy power production facility.

88. The system of Claim 85, wherein:

 said accounting mechanism is configured to keep track of virtual energy storage accounts for a plurality of renewable energy power production facilities; and
 said system further comprising a collection and transmission grid interconnecting the renewable energy power production facility, and a plurality of other renewable energy power production facilities to the co-active converter such that energy provided by the renewable energy power production facility in the plurality of renewable energy power production facilities provides a cumulative power to said co-active converter.

89. The system of Claim 88, wherein an output of said collection and transmission grid being provided to a high voltage DC link.

90. The system of Claim 68, further comprising a dedicated control link configured to interconnect said control processor and said remote facility, wherein

 said message forming mechanism is configured to send said coordination message over said dedicated control link, so as to control a power output by said remote facility to correspond with amount of premier power delivered by said converter.

91. The system of Claim 90, wherein said coordination message is configured to inform said remote facility of a future time at which said power is to be delivered from said renewable energy power production facility, so that said remote facility can reduce an output thereof by a corresponding amount of power delivered by the remote facility such that an aggregate amount of power delivered by both the renewable energy power production facility and the remote facility equates to an composite aggregate amount of power obliged to be delivered by the renewable energy power production facility and the remote facility.

92. The system of Claim 90, wherein said remote facility is configured to increase a power production output therefrom, so as to compensate for a shortfall from said renewable energy power production facility.

93. The system of Claim 68, wherein said processor is configured to provide said coordination message in a text based format so that an operator may audibly inform another operator at the remote facility regarding a request to adjust an output power from the remote facility so as to offset at least one of a surplus and a shortfall of power produced at the renewable energy power production facility.

94. The system of Claim 68, wherein said control processor further includes an interface for hosting a web page by which coordination between the renewable energy power production facility and the remote facility is maintained so as to coordinate respective amounts of power produced by the renewable energy power production facility and the remote facility.

95. The system of Claim 68, wherein said processor is configured to implement a load shedding messaging mechanism that provides a load shedding message to the remote facility such that the remote facility can alter a load imparted by the remote facility to the power grid in response to an amount of premier power delivered by the converter.

96. The system of Claim 68, wherein said processor is configured to implement a renewable exchange that offers for sale said premier power as a unit of power for purchase by a third party.

97. The system of Claim 96, wherein said message forming mechanism is configured to include a meteorological forecast message provided to the renewable exchange in association with said unit of power so said third party may be informed as to a likelihood of said renewable energy power production facility actually being able to deliver the premier power at a predetermined future time.

98. The system of Claim 97, wherein said meteorological forecast message includes an indication of the predetermined future time, and a statistical indicator of the likelihood of the renewable energy power production facility being able to deliver the premier power as a unit of power.

99. The system of Claim 96, wherein said renewable exchange is configured to receive an offer for said unit of power and accept said offer by said renewable energy power production facility when said offer is above a predetermined price.

100. The system of Claim 68, wherein said processor is configured to implement a transmission rights recognition mechanism that identifies whether said renewable energy power production facility has obtained transmission rights from said converter to said remote facility, and produce a warning message if the transmission rights have not been established.

101. The system of Claim 96, wherein said processor is configured to include an accounting mechanism that keeps track of a price at which said unit of power is sold, and an entity from which payment for a purchaser of the unit of power may be accepted.

REMARKS

Favorable reconsideration of this application, as presently amended, and in light of the following discussion, is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier
Registration No. 25,599
Bradley D. Lytle
Registration No. 40,073



22850

Fax: (703) 413-3220
GJM:BDL:cac

Marked-Up Copy
Serial No: New App
Amendment Filed on:
4-20-01

IN THE CLAIMS

68. (Amended) A system for facilitating application of AC power from a renewable energy power production facility to a power grid, comprising:

the renewable energy power production facility configured to produce an amount of electrical power at a time variable frequency that is not compatible with a power grid;

a converter connected between said renewable energy power production facility and the power grid and configured to convert said amount of electrical power from the renewable energy power production facility to premier power that is compatible with a frequency and operational requirement of the power grid such that an output from said converter may be applied directly to the power grid;

a control processor including,

a communication port configured to transfer to a remote facility an indication regarding an amount of premier power produced by said converter,

a memory configured to hold computer readable instructions,

a processor configured to execute said computer readable instructions so as to implement,

a power monitoring mechanism configured to monitor said amount of premier power,

a message forming mechanism configured to include said indication in a coordination message that is sent through a communication link to said remote facility regarding the amount of premier power available to apply to said power grid wherein said remote facility being configured to apply power to said grid either directly from the remote facility or indirectly from another facility that applies power upon request from the remote facility.